L Number	Hits	Search Text	DB	Time stamp
1	9	(US-6060746-\$ or US-4903089-\$ or US-6664143-\$ or US-5106778-\$ or US-5324673-\$ or US-6197641-\$ or US-6027975-\$ or US-6387758-\$ or US-6686604-\$).did.	USPAT	2004/06/10 19:12
2	50	(vertical adj transistor) and ((dielectric or insulat\$4) near3 plug)	USPAT; US-PGPUB; EPO; JPO; IBM TDB	2004/06/10 19:13
3	48	((vertical adj transistor) and ((dielectric or insulat\$4) near3 plug)) not ((US-6060746-\$ or US-4903089-\$ or US-6664143-\$ or US-5106778-\$ or US-5324673-\$ or US-6197641-\$ or US-6027975-\$ or US-6387758-\$ or US-6686604-\$).did.)	USPAT; US-PGPUB; EPO; JPO; IBM_TDB	2004/06/10 19:13
4	18	<pre>(((vertical adj transistor) and ((dielectric or insulat\$4) near3 plug)) not ((US-6060746-\$ or US-4903089-\$ or US-6664143-\$ or US-5106778-\$ or US-5324673-\$ or US-6197641-\$ or US-6027975-\$ or US-6387758-\$ or US-6686604-\$).did.)) and (monocrystalline)</pre>	USPAT; US-PGPUB; EPO; JPO; IBM_TDB	2004/06/10 19:24
5	2	"6664143"	USPAT; US-PGPUB; EPO; JPO; IBM_TDB	2004/06/10 19:24
-	0	6664143.URPN.	USPAT	2004/02/12 11:40
_	0	(vertical adj field adj transistor).ti.	USPAT; US-PGPUB; EPO; JPO; IBM TDB	2004/02/12 11:45
_	153	(vertical adj field adj effect adj transistor).ti.	USPAT; US-PGPUB; EPO; JPO; IBM TDB	2004/02/12 12:02
-	3	<pre>((((vertical adj field adj effect adj transistor).ti.) not zhang-zhibo.in.) and (trench)) and (monocrystalline adj silicon)</pre>	USPAT; US-PGPUB; EPO; JPO; IBM TDB	2004/02/12 11:48
-	21	<pre>((((vertical adj field adj effect adj transistor).ti.) not zhang-zhibo.in.) and (trench)) not ((((vertical adj field adj effect adj transistor).ti.) not zhang-zhibo.in.) and (trench)) and (monocrystalline adj silicon))</pre>	USPAT; US-PGPUB; EPO; JPO; IBM_TDB	2004/02/12 11:48
-	3	("6020239" "6127230" "6197640").PN.	USPAT	2004/02/12 11:53
-	1	6387758.URPN.	USPAT	2004/02/12 11:54
-	1	"6033957".PN.	USPAT	2004/02/12
	25	("4716548" "4774556" "4796228" "4876580" "4920065" "4929988" "4964080" "4979004" "5001526" "5006909" "5016063" "5016067" "5017977" "5071782" "5078498" "5146426" "5258634" "5338953" "5350937" "5382540" "5386132" "5460994" "5467305" "5497017" "5574299").PN.	USPAT	2004/02/12 11:57
-	4	6376312.URPN.	USPAT	2004/02/12 11:58

		· · · · · · · · · · · · · · · · · · ·		
-	56	1	USPAT;	2004/02/12
		transistor) and (monocrystalline adj	US-PGPUB;	12:03
	1	silicon)) not (zhang-zhibo.in.	EPO; JPO;	ļ
		(("5106778" "5739057" "5757038"	IBM_TDB	
		"6049106" "6420751").PN.) (("4378629"		
		"4530149" "4543706" "4586240"		
		"4677451" "4713358" "4757029"		
		"4840923").PN.) 5106778.URPN.		i
		((((vertical adj field adj effect adj		į Į
		transistor).ti.) not zhang-zhibo.in.) and		
		(trench)))		İ
_	47		USPAT;	2004/02/12
	1.	transistor) and (monocrystalline adj	US-PGPUB;	12:03
	1	silicon)) not (zhang-zhibo.in.	EPO; JPO;	12.00
]	(("5106778" "5739057" "5757038"	IBM TDB	
	1	"6049106" "6420751").PN.) (("4378629"	1011_100	
		"4530149" "4543706" "4586240"		
		"4677451" "4713358" "4757029"		
		"4840923").PN.) 5106778.URPN.		
		((((vertical adj field adj effect adj		
	1	transistor).ti.) not zhang-zhibo.in.) and		
		(trench)))) and (trench and substrate)		2004/02/25
-	14	((((vertical adj field adj effect adj	USPAT;	2004/02/12
		transistor) and (monocrystalline adj	US-PGPUB;	12:06
İ	Ĭ	silicon)) not (zhang-zhibo.in.	EPO; JPO;	
		(("5106778" "5739057" "5757038"	IBM_TDB	
		"6049106" "6420751").PN.) (("4378629"		
		"4530149" "4543706" "4586240"		
		"4677451" "4713358" "4757029"		
		"4840923").PN.) 5106778.URPN.		
		((((vertical adj field adj effect adj		
		transistor).ti.) not zhang-zhibo.in.) and		
		(trench)))) and (trench and substrate))		
		and (plug)		
_	33	((((vertical adj field adj effect adj	USPAT;	2004/02/12
		transistor) and (monocrystalline adj	US-PGPUB;	12:07
		silicon)) not (zhang-zhibo.in.	EPO; JPO;	
		(("5106778" "5739057" "5757038"	IBM TDB	
		"6049106" "6420751").PN.) (("4378629"	_	
		"4530149" "4543706" "4586240"		
	1	"4677451" "4713358" "4757029"		
		"4840923").PN.) 5106778.URPN.		
	1	((((vertical adj field adj effect adj		
		transistor).ti.) not zhang-zhibo.in.) and		
		(trench)))) and (trench and substrate))		
		not (((((vertical adj field adj effect		
		adj transistor) and (monocrystalline adj		
		silicon)) not (zhang-zhibo.in.		1
		(("5106778" "5739057" "5757038"	Ì	
		"6049106" "6420751").PN.) (("4378629"		
		"4530149" "4543706" "4586240"		
		"4677451" "4713358" "4757029"		
		"4840923").PN.) 5106778.URPN.		
		((((vertical adj field adj effect adj		
		transistor).ti.) not zhang-zhibo.in.) and		
		(trench)))) and (trench and substrate))		
		and (plug))		
	L	lana (brad))	<u> </u>	

_	26	(((((vertical adj field adj effect adj	USPAT;	2004/02/12
		transistor) and (monocrystalline adj	US-PGPUB;	12:11
		silicon)) not (zhang-zhibo.in.	EPO; JPO;	
		(("5106778" "5739057" "575703 <u>8</u> "	IBM_TDB	
		"6049106" "6420751").PN.) (("4378629"		
		"4530149" "4543706" "4586240"		
		"4677451" "4713358" "4757029"		
		"4840923").PN.) 5106778.URPN.		
		((((vertical adj field adj effect adj		
		transistor).ti.) not zhang-zhibo.in.) and		
		(trench)))) and (trench and substrate))		
		not ((((vertical adj field adj effect		
		adj transistor) and (monocrystalline adj		
		silicon)) not (zhang-zhibo.in.	İ	
		(("5106778" "5739057" "5757038"		
		"6049106" "6420751").PN.) (("4378629"		
		"4530149" "4543706" "4586240"		
		"4677451" "4713358" "4757029"		
	1	"4840923").PN.) 5106778.URPN.		
	1			
	1	((((vertical adj field adj effect adj		
		transistor).ti.) not zhang-zhibo.in.) and		
		(trench)))) and (trench and substrate))		
		and (plug))) and ((side adj wall) or		
	_	(sidewall))		0004/00/10
-	9	(((vertical adj field adj effect adj	USPAT;	2004/02/12
		transistor) and (monocrystalline adj	US-PGPUB;	12:11
•		silicon)) not (zhang-zhibo.in.	EPO; JPO;	
		(("5106778" "5739057" "5757038"	IBM_TDB	
		"6049106" "6420751").PN.) (("4378629"		
1		"4530149" "4543706" "4586240"		
Ì		"4677451" "4713358" "4757029"		
		"4840923").PN.) 5106778.URPN.		
		((((vertical adj field adj effect adj		
		transistor).ti.) not zhang-zhibo.in.) and		
		(trench)))) not ((((vertical adj field		
	ļ	adj effect adj transistor) and		
		(monocrystalline adj silicon)) not		
		(zhang-zhibo.in. (("5106778" "5739057"		
		"5757038" "6049106" "6420751").PN.)		
		(("4378629" "4530149" "4543706"		
		"4586240" "4677451" "4713358"		
		"4757029" "4840923").PN.) 5106778.URPN.		
		((((vertical adj field adj effect adj		
		transistor).ti.) not zhang-zhibo.in.) and		
		(trench)))) and (trench and substrate))		
-	92	(vertical adj field adj effect adj	USPAT;	2004/02/12
		transistor).clm.	US-PGPUB;	12:12
	1		EPO; JPO;	
	1		IBM TDB	
_	72	((vertical adj field adj effect adj	USPAT;	2004/02/12
	, 2	transistor).clm.) not ((vertical adj	US-PGPUB;	12:13
1		field adj effect adj transistor) and	EPO; JPO;	
		(monocrystalline adj silicon))	IBM TDB	
_	63	1 1 2 2	USPAT;	2004/02/12
1		transistor).clm.) not ((vertical adj	US-PGPUB;	12:13
		field adj effect adj transistor) and	EPO; JPO;	
1		(monocrystalline adj silicon))) not	IBM TDB	
		(monocrystalline adj silicon), not (zhang-zhibo.in. (("5106778" "5739057"		
1		"5757038" "6049106" "6420751").PN.)		
		(("4378629" "4530149" "4543706"		
		"4586240" "4677451" "4713358"	İ	
		"4757029" "4840923").PN.) 5106778.URPN.		
		((((vertical adj field adj effect adj		
		transistor).ti.) not zhang-zhibo.in.) and		
		(trench)))		

-	4	((((vertical adj field adj effect adj	USPAT;	2004/02/12
		transistor).clm.) not ((vertical adj	US-PGPUB;	12:14
		field adj effect adj transistor) and	EPO; JPO;	
		(monocrystalline adj silicon))) not	IBM_TDB	
		(zhang-zhibo.in. (("5106778" "5739057"		
		"5757038" "6049106" "6420751").PN.)		
		(("4378629" "4530149" "4543706"		
		"4586240" "4677451" "4713358"		
		"4757029" "4840923").PN.) 5106778.URPN.		
		((((vertical adj field adj effect adj		
		transistor).ti.) not zhang-zhibo.in.) and		
		(trench)))) and (monocrystalline)	HCDAT.	2004/02/12
-	59	((((vertical adj field adj effect adj	USPAT;	
		transistor).clm.) not ((vertical adj	US-PGPUB;	12:14
		field adj effect adj transistor) and	EPO; JPO;	
		(monocrystalline adj silicon))) not	IBM_TDB	
		(zhang-zhibo.in. (("5106778" "5739057"		
]	1	"5757038" "6049106" "6420751").PN.)		
		(("4378629" "4530149" "4543706"		
		"4586240" "4677451" "4713358"		
		"4757029" "4840923").PN.) 5106778.URPN.		
		((((vertical adj field adj effect adj	· ·	
		transistor).ti.) not zhang-zhibo.in.) and		
		(trench))) not ((((vertical adj field		
		adj effect adj transistor).clm.) not		
		((vertical adj field adj effect adj		
	:	transistor) and (monocrystalline adj		
		silicon))) not (zhang-zhibo.in.		
		(("5106778" "5739057" "5757038"		
		"6049106" "6420751").PN.) (("4378629"		
		"4530149" "4543706" "4586240"		
		"4677451" "4713358" "4757029"		
		"4840923").PN.) 5106778.URPN.		
		((((vertical adj field adj effect adj		
}		transistor).ti.) not zhang-zhibo.in.) and		
		(trench)))) and (monocrystalline))		
_	23	(((((vertical adj field adj effect adj	USPAT;	2004/02/12
!		transistor).clm.) not ((vertical adj	US-PGPUB;	12:17
		field adj effect adj transistor) and	EPO; JPO;	
		(monocrystalline adj silicon))) not	IBM TDB	
		(zhang-zhibo.in. (("5106778" "5739057"		
		"5757038" "6049106" "6420751").PN.)		Į
		(("4378629" "4530149" "4543706"	Į	İ
		"4586240" "4677451" "4713358"		
		"4757029" "4840923").PN.) 5106778.URPN.		
		((((vertical adj field adj effect adj		
i		transistor).ti.) not zhang-zhibo.in.) and		
1		(trench)))) not ((((vertical adj field		
	ļ	adj effect adj transistor).clm.) not		
İ		((vertical adj field adj effect adj		
1		transistor) and (monocrystalline adj		l
[1	silicon))) not (zhang-zhibo.in.		
1		(("5106778" "5739057" "5757038"		
1		"6049106" "6420751").PN.) (("4378629"		1
1		"4530149" "4543706" "4586240"		
1		"4677451" "4713358" "4757029"		
1		"4840923").PN.) 5106778.URPN.		
		((((vertical adj field adj effect adj		
1		transistor).ti.) not zhang-zhibo.in.) and		
		(trench)))) and (monocrystalline))) and		
		(trench)		
	L	[/crencil]	l	<u> </u>

			*****	0004/00/50
-	36		USPAT;	2004/02/12
		transistor).clm.) not ((vertical adj	US-PGPUB;	13:29
		field adj effect adj transistor) and	EPO; JPO;	
		(monocrystalline adj silicon))) not	IBM TDB	
		(zhang-zhibo.in. (("5106778" "5739057"	-	
		"5757038" "6049106" "6420751").PN.)		
		(("4378629" "4530149" "4543706"		·
		"4586240" "4677451" "4713358"		
		"4757029" "4840923").PN.) 5106778.URPN.		
		((((vertical adj field adj effect adj		
		transistor).ti.) not zhang-zhibo.in.) and		
		(trench)))) not ((((vertical adj field		
		adj effect adj transistor).clm.) not		
		((vertical adj field adj effect adj		<u> </u>
		transistor) and (monocrystalline adj		
		silicon))) not (zhang-zhibo.in.		
		(("5106778" "5739057" "5757038"		
		"6049106" "6420751").PN.) (("4378629"		
		"4530149" "4543706" "4586240"		
		"4677451" "4713358" "4757029"		
		"4840923").PN.) 5106778.URPN.		
		((((vertical adj field adj effect adj		
		transistor).ti.) not zhang-zhibo.in.) and		
		(trench)))) and (monocrystalline))) not		
		(((((vertical adj field adj effect adj		
		transistor).clm.) not ((vertical adj		<u>'</u>
		field adj effect adj transistor) and		
		(monocrystalline adj silicon))) not		
		(zhang-zhibo.in. (("5106778" "5739057"		
		"5757038" "6049106" "6420751").PN.)		
		(("4378629" "4530149" "4543706"		
		"4586240" "4677451" "4713358"		
		"4757029" "4840923").PN.) 5106778.URPN.		
		((((vertical adj field adj effect adj		
		transistor).ti.) not zhang-zhibo.in.) and		
		(trench)))) not (((((vertical adj field		
		adj effect adj transistor).clm.) not		
		((vertical adj field adj effect adj		
		transistor) and (monocrystalline adj		
		silicon))) not (zhang-zhibo.in.		
		(("5106778" "5739057" "5757038"		
		"6049106" "6420751").PN.) (("4378629"		
		"4530149" "4543706" "4586240"		
		"4677451" "4713358" "4757029"		
	1	"4840923").PN.) 5106778.URPN.		
		((((vertical adj field adj effect adj		
1		transistor).ti.) not zhang-zhibo.in.) and		
1		(trench)))) and (monocrystalline))) and		
i				1
1	_	(trench))	******	2004/02/12
-	2	"6387758"	USPAT;	2004/02/12
-	ļ		US-PGPUB;	13:29
			EPO; JPO;	1
1	1		IBM TDB	
1 -	151	((vertical adj field adj effect adj	USPAT;	2004/02/12
		transistor).ti.) not zhang-zhibo.in.	US-PGPUB;	13:32
1		Classification and analy animovalis	EPO; JPO;	
1			IBM_TDB	2004/00/10
-	802	(vertical adj3 transistor).ti.	USPAT;	2004/02/12
	ļ		US-PGPUB;	13:33
			EPO; JPO;	
1			IBM TDB	
-	54	((vertical adj3 transistor).ti.) and	USPAT;	2004/02/12
	"	trench and (monocrystalline adj silicon)	US-PGPUB;	13:33
		cremen and (monocryptarine ad) britton;	EPO; JPO;	
]			
			IBM_TDB	2004/02/12
-	24	(((vertical adj field adj effect adj	USPAT;	2004/02/12
1		transistor).ti.) not zhang-zhibo.in.) and	US-PGPUB;	13:35
		(trench)	EPO; JPO;	
			IBM TDB	
L	L	L		·

- 662 (vertical adj field adj effect adj transistor) and (monocrystalline adj) silitoon) - 1 "6664143" - 66 (("6420751") or ("6049106") or ("5739057") or ("5757038") or ("5106778") or ("6739057") or ("5757038") or ("5106778") or ("6989599").PN 66 (transport of transport of t					
- 1 "6664143"	-	62	(vertical adj field adj effect adj	,	
1 "6664143" USPAT; US-PGPUB; SPR7; US-PGPUB; SPR7; US-PGPUB; SPR7; US-PGPUB; SPR7; US-PGPUB; SPR7; OF ("5739057") or ("5757038") or ("5106778") SPR7; US-PGPUB; USPAT; US-PGPUB; USPAT; US-PGPUB; USPAT; US-PGPUB; USPAT; US-PGPUB; USPAT; US-PGPUB; USPAT; US-PGPUB; USPAT; US-PGPUB; USPAT; US-PGPUB; USPAT; US-PGPUB; USPAT; US-PGPUB; USPAT; US-PGPUB; USPAT; US-PGPUB; USPAT; USP				i i	13:35
- 1 "6664143" - ("6420751") or ("6049106") or ("5739057") or ("5757038") or ("5106778") or ("5739057") or ("5757038") or ("5106778") or ("9899599")).PN. - 6 zhang-zhibo.in. - 5 ("5106778" "5739057" "5757038" USPAT; US-F6PUB; EPO; JPO; IBM_TDB USPAT; US-F6PUB; EPO; JPO; IBM_TDB USPAT; US-F6PUB; EPO; JPO; IBM_TDB USPAT; US-F6PUB; EPO; JPO; IBM_TDB USPAT; US-F6PUB; EPO; JPO; IBM_TDB USPAT; US-F6PUB; EPO; JPO; IBM_TDB USPAT; US-F6PUB; EPO; JPO; IBM_TDB USPAT; US-F6PUB; EPO; JPO; IBM_TDB USPAT; US-F6PUB; EPO; JPO; IBM_TDB USPAT; USPAC; US		·	silicon)		
Section Sect	_	1	"6664143"	_	2004/02/12
TIM TDB		•	0001210		, , , , , , , , , , , , , , , , , , , ,
6				EPO; JPO;	
or ("0989599")).PN. EPO, JPO; IEM TDB USPAT; USP-GEUB; EPO, JPO; IEM TDB USPAT; USP-GEUB; EPO, JPO; IEM TDB USPAT; USP-GEUB; EPO, JPO; IEM TDB USPAT; USP-GEUB; EPO, JPO; IEM TDB USPAT 13:35	-	6			
TRM TDB USPAT; USPA					13:35
- 6 zhang-zhibo.in. - ("5106778" "5739057" "5557038" USPĀT; EPO; JPO; IBM TDB - ("6049106" "6420751").PN. - ("4378629" "4530149" "4543706" USPĀT			OI (0909399		
- 5 ("\$106778" "\$739057" "\$557038" IBM_TDB USPAT 2004/02/12 13:35 2004/02/12 13:35 2004/02/12 13:35 2004/02/12 13:35 2004/02/12 13:35 2004/02/12 13:35 2004/02/12 13:35 2004/02/12 13:35 2004/02/12 13:35 2004/02/12 2004/0	_	6	zhang-zhibo.in.		2004/02/12
S			_		13:35
- 5 ("5106778" "5739057" "5757038" "6049106" "6420751").PN. 13:35 13:3					
"6049106" "6420751").PN.			/#5106770# #5720057# #5757020#		2004/02/12
8	-	5		USPAI	
"4586240" "4677451" "4713358" "4757029" "4840923").PN.	_	8		USPAT	
- 14 5106778.URPN.					13:35
C					
- 6 ("4670768" "5324673" "5612563" USPAT 2004/02/12 13:41 USPAT 2004/02/12 13:41 USPAT 2004/02/12 13:41 USPAT 2004/02/12 13:43 USPAT 2004/02/12 13:43 USPAT 2004/02/12 13:43 USPAT 2004/02/12 13:43 USPAT 2004/02/12 13:45 USPAT 2004/02/12 13:45 USPAT 2004/02/12 13:45 USPAT 2004/02/12 13:45 USPAT 2004/02/12 13:45 USPAT 2004/02/12 13:45 USPAT 2004/02/12 13:45 USPAT 2004/02/12 13:46 USPAT 2004/02/12 13:46 USPAT 2004/02/12 13:46 USPAT 2004/02/12 13:46 USPAT 2004/02/12 13:46 USPAT 2004/02/12 13:46 USPAT 2004/02/12 13:46 USPAT 2004/02/12 13:46 USPAT 2004/02/12 13:46 USPAT 2004/02/12 13:46 USPAT 2004/02/12 13:46 USPAT 2004/02/12 13:46 USPAT 2004/02/12 13:46 USPAT 2004/02/12 13:46 USPAT 2004/02/12 20	-	14	5106778.URPN.	USPAT	
15 6197641.URPN. 13:41 2004/02/12 13:43 2004/02/12 13:43 2004/02/12 13:43 2004/02/12 13:45 2004/02/12 13:45 2004/02/12 13:45 2004/02/12 13:45 2004/02/12 13:45 2004/02/12 13:45 2004/02/12 13:45 2004/02/12 13:46 2004/02/12 13:46 2004/02/12 2004/02/		۔	("4670760" "5324673" "5612563"	ייי מפטעיי	
15	-	•		USFAI	
- 15 6197641.URPN. - ("4670768" "5733811" "5872037" USPAT 13:45 2004/02/12 13:46 USPAT ((vertical adj3 transistor).ti.) not ((((vertical adj3 transistor).ti.) and trench and (monocrystalline adj field adj effect adj transistor).ti.) not ((((vertical adj field adj) field adj) field adj effect adj transistor).ti.) not (("5739057") or ("5757038") or ("5106778") or ("098599")).PN.) zhang-zhibo.in. (((vertical adj3 transistor).ti.) not (((vertical adj3 transistor).ti.)) not (((vertical adj3 transistor).ti.)) not (((vertical adj3 transistor).ti.)) and trench and (monocrystalline adj silicon)) ("S43706" "4530149" "4543706" "4580240" "4677451" "4713358" "4757029" "840923").PN.) 5106778.URPN.) (((vertical adj3 transistor).ti.)) and trench and (monocrystalline adj silicon)) (EPC). JPO; IBM_TDB EPC). _	15		USPAT	1 = 1	
Total					
-	-	15	6197641.URPN.	USPAT	
Tool		_	(11467076011 11572201111 11597202711	IICD M	
- 720 ((vertical adj3 transistor).ti.) not ((((vertical adj3 transistor).ti.) and trench and (monocrystalline adj silicon)) "20020060338" ((((vertical adj field adj effect adj transistor).ti.) not zhang-zhibo.in.) and (trench)) ((vertical adj field adj field adj effect adj transistor) and (monocrystalline adj silicon)) "6664143" ((("6420751") or ("6049106") or ("5739057") or ("5757038") or ("5106778") or ("0989599")).PN.) zhang-zhibo.in. (("5106778" "5739057" "5757038" "6049106" "6420751").PN.) (("4378629" "4530149" "4543706" "4586240" "457451" "4713358" "4757029" "4840923").PN.) 5106778.URPN.) ((vertical adj trench and (monocrystalline adj silicon)) "20020060338" ((((vertical adj field adj effect adj transistor).ti.) not zhang-zhibo.in.) and (trench)) ((vertical adj field adj effect adj transistor) and (monocrystalline adj silicon)) "6664143" ((("6420751") or ("6049106") or ("5106778") or ("5757038") or ("5106778") or ("5106778") or ("5106778" "5737038") or ("5106778") or ("5106778" "5737038" "6049106" "6420751").PN.) (("4378629" "4530149" "4543706" "4586240" "4586240" "4677451" "4713358" "4757029" "4840923").PN.) 5106778.URPN.)) and	-	5		USPAT	
((((vertical adj3 transistor).ti.) and trench and (monocrystalline adj silicon)) "20020060338" ((((vertical adj field adj effect adj transistor).ti.) not	_	720		USPAT;	
"20020060338" ((((vertical adj field adj effect adj transistor).ti.) not zhang-zhibo.in.) and (trench)) ((vertical adj field adj effect adj transistor) and (monocrystalline adj silicon)) "6664143" (("6420751") or ("6049106") or ("5739057") or ("5757038") or ("5106778") or ("0889599")).PN.) zhang-zhibo.in. (("5106778" "5739057" "5757038" "6049106" "6420751").PN.) (("4378629" "4530149" "4543706" "4586240" "4677451" "4713358" "4757029" "4640923").PN.) 5106778.URPN.) (((vertical adj3 transistor).ti.) not ((((vertical adj3 transistor).ti.) and trench and (monocrystalline adj silicon)) "20020060338" ((((vertical adj field adj effect adj transistor).ti.) not zhang-zhibo.in.) and (trench)) ((vertical adj field adj effect adj transistor) and (monocrystalline adj silicon)) "6664143" (("6420751") or ("6049106") or ("5739057") or ("5757038") or ("5106778") or ("0889599").PN.) zhang-zhibo.in. (("5106778" "5757038" "5757038" "6049106" "6420751").PN.) (("4378629" "4530149" "453706" "4586240" "457029" "4500490" "4713358" "4757029" "4640923").PN.) 5106778.URPN.)) and		, _ ,			17:09
effect adj transistor).ti.) not zhang-zhibo.in.) and (trench)) ((vertical adj field adj effect adj transistor) and (monocrystalline adj silicon)) "6664143" ((("6420751") or ("6049106") or ("5739057") or ("5757038") or ("5106778") or ("0989599")).PN.) zhang-zhibo.in. (("5106778" "5739057" "5757038" "6049106" "6420751").PN.) (("4378629" "4530149" "4543706" "4586240" "4677451" "4713358" "4757029" "4840923").PN.) 5106778.URPN.) (((vertical adj3 transistor).ti.) not (((vertical adj3 transistor).ti.) not (((vertical adj3 transistor).ti.) not zhang-zhibo.in.) and (trench)) ((vertical adj field adj effect adj transistor) and (monocrystalline adj silicon)) "6664143" ((("6420751") or ("6049106") or ("5733057") or ("5757038") or ("5106778") or ("0989599")).PN.) zhang-zhibo.in. (("5106778" "5739057" "5757038" "6049106" "620751").PN.) (("4378629" "4530149" "4543706" "4586240" "4677451" "4713358" "4757029" "4840923").PN.) 5106778.URPN.)) and					
zhang-zhibo.in.) and (trench)) ((vertical adj field adj effect adj transistor) and (monocrystalline adj silicon)) "6664143" ((("6420751") or ("6049106") or ("0989599")).PN.) zhang-zhibo.in. (("5106778") or ("7579057" "5757038" "6049106" "620751").PN.) (("4378629" "4530149" "4543706" "4586240" "4677451" "4713358" "4757029" "4840923").PN.) 5106778.URPN.) (((vertical adj3 transistor).ti.) not ((((vertical adj3 transistor).ti.) and trench and (monocrystalline adj silicon)) "20020060338" ((((vertical adj field adj effect adj transistor).ti.) not zhang-zhibo.in.) and (trench)) ((vertical adj field adj effect adj transistor) and (monocrystalline adj silicon)) "6664143" (("6420751") or ("5049106") or ("5739057") or ("5757038") or ("5106778") or ("0989599")).PN.) zhang-zhibo.in. (("5106778" "5757038" "6049106" "6420751").PN.) (("4378629" "4530149" "4543706" "4586240" "4677451" "4713358" "4757029" "4840923").PN.) 5106778.URPN.)) and				IBM_TDB	
adj field adj effect adj transistor) and (monocrystalline adj silicon)) "6664143" ((("6420751") or ("6049106") or ("5739057") or ("5757038") or ("5106778") or ("0989599")).PN.) zhang-zhibo.in. (("5106778" "5739057" "5757038" "6049106" "6420751").PN.) (("4378629" "4530149" "4543706" "4586240" "4677451" "4713358" "4757029" "4840923").PN.) 5106778.URPN.) (((vertical adj3 transistor).ti.) not ((((vertical adj3 transistor).ti.) and trench and (monocrystalline adj silicon)) "20020060338" ((((vertical adj field adj effect adj transistor).ti.) not zhang-zhibo.in.) and (trench)) ((vertical adj field adj effect adj transistor) and (monocrystalline adj silicon)) "6664143" ((("6420751") or ("6049106") or ("5739057") or ("5757038") or ("5106778") or ("0989599")).PN.) zhang-zhibo.in. (("5106778" "5739057" "5757038" "6049106" "6420751").PN.) (("4378629" "4530149" "4543706" "4586240" "4677451" "4713358" "4757029" "4840923").PN.) 5106778.URPN.)) and					
(monocrystalline adj silicon)) "6664143" (("6420751") or ("6049106") or ("5739057") or ("5757038") or ("5106778") or ("0989599")).PN.) zhang-zhibo.in. (("5106778" "5739057" "5757038" "6049106" "6420751").PN.) (("4378629" "4530149" "4543706" "4586240" "4677451" "4713358" "4757029" "4840923").PN.) 5106778.URPN.) (((vertical adj3 transistor).ti.) not (((vertical adj3 transistor).ti.) and trench and (monocrystalline adj silicon)) "20020060338" ((((vertical adj field adj effect adj transistor).ti.) not zhang-zhibo.in.) and (trench)) ((vertical adj field adj effect adj transistor) and (monocrystalline adj silicon)) "6664143" ((("6420751") or ("6049106") or ("5739057") or ("5757038") or ("5106778") or ("0989599")).PN.) zhang-zhibo.in. (("5106778" "5737038" "6049106" "6420751").PN.) (("4378629" "4530149" "4543706" "4586240" "4677451" "4713358" "4757029" "4840923").PN.) 5106778.URPN.)) and					
("5739057") or ("5757038") or ("5106778") or ("0989599")).PN.) zhang-zhibo.in. (("5106778" "5739057" "5757038" "6049106" "6420751").PN.) (("4378629" "4530149" "4543706" "4586240" "4677451" "4713358" "4757029" "4840923").PN.) 5106778.URPN.) 359 (((vertical adj3 transistor).ti.) not (((vertical adj3 transistor).ti.) and trench and (monocrystalline adj silicon)) "20020060338" ((((vertical adj field adj effect adj transistor).ti.) not zhang-zhibo.in.) and (trench)) ((vertical adj field adj effect adj transistor) and (monocrystalline adj silicon)) "6664143" ((("6420751") or ("6049106") or ("5739057") or ("5757038") or ("5106778") or ("0989599")).PN.) zhang-zhibo.in. (("5106778" "5739057" "5757038" "6049106" "6420751").PN.) (("4378629" "4530149" "4543706" "4586240" "4677451" "4713358" "4757029" "4840923").PN.) 5106778.URPN.)) and					
or ("0989599")).PN.) zhang-zhibo.in. (("5106778" "5739057" "5757038" "6049106" "6420751").PN.) (("4378629" "4530149" "4543706" "4586240" "4677451" "4713358" "4757029" "4840923").PN.) 5106778.URPN.) (((vertical adj3 transistor).ti.) not ((((vertical adj3 transistor).ti.) and trench and (monocrystalline adj silicon)) "20020060338" ((((vertical adj field adj effect adj transistor).ti.) not zhang-zhibo.in.) and (trench)) ((vertical adj field adj effect adj transistor) and (monocrystalline adj silicon)) "6664143" ((("6420751") or ("6049106") or ("5739057") or ("5757038") or ("5106778") or ("0989599")).PN.) zhang-zhibo.in. (("5106778" "5739057" "5757038" "6049106" "6420751").PN.) (("4378629" "4530149" "4543706" "4586240" "4677451" "4713358" "4757029" "4840923").PN.) 5106778.URPN.)) and		1	((("6420751") or ("6049106") or		
(("5106778" "5739057" "5757038" "6049106" "6420751").PN.) (("4378629" "4530149" "4543706" "4586240" "4677451" "4713358" "4757029" "4840923").PN.) 5106778.URPN.) (((vertical adj3 transistor).ti.) not ((((vertical adj3 transistor).ti.) and trench and (monocrystalline adj silicon)) "20020060338" ((((vertical adj field adj effect adj transistor).ti.) not zhang-zhibo.in.) and (trench)) ((vertical adj field adj effect adj transistor) and (monocrystalline adj silicon)) "6664143" ((("6420751") or ("6049106") or ("5739057") or ("5757038") or ("5106778") or ("0989599")).PN.) zhang-zhibo.in. (("5106778" "5739057" "5757038" "6049106" "6420751").PN.) (("4378629" "4530149" "4543706" "4586240" "4677451" "4713358" "4757029" "4840923").PN.) 5106778.URPN.)) and					
"6049106" "6420751").PN.) (("4378629" "4530149" "4543706" "4586240" "4677451" "4713358" "4757029" "4840923").PN.) 5106778.URPN.) (((vertical adj3 transistor).ti.) not ((((vertical adj3 transistor).ti.) and trench and (monocrystalline adj silicon)) "20020060338" ((((vertical adj field adj effect adj transistor).ti.) not zhang-zhibo.in.) and (trench)) ((vertical adj field adj effect adj transistor) and ((monocrystalline adj silicon)) "6664143" ((("6420751") or ("6049106") or ("5739057") or ("5757038") or ("5106778") or ("0989599")).PN.) zhang-zhibo.in. (("5106778" "5739057" "5757038" "6049106" "6420751").PN.) (("4378629" "4530149" "4543706" "4586240" "4677451" "4713358" "4757029" "4840923").PN.) 5106778.URPN.)) and					
"4530149" "4543706" "4586240" "4677451" "4713358" "4757029" "4840923").PN.) 5106778.URPN.) (((vertical adj3 transistor).ti.) not (((vertical adj3 transistor).ti.) and trench and (monocrystalline adj silicon)) "20020060338" ((((vertical adj field adj effect adj transistor).ti.) not zhang-zhibo.in.) and (trench)) ((vertical adj field adj effect adj transistor) and (monocrystalline adj silicon)) "6664143" ((("6420751") or ("6049106") or ("5739057") or ("5757038") or ("5106778") or ("0989599")).PN.) zhang-zhibo.in. (("5106778" "5739057" "5757038" "6049106" "6420751").PN.) (("4378629" "4530149" "4543706" "4586240" "4677451" "4713358" "4757029" "4840923").PN.) 5106778.URPN.)) and					
"4677451" "4713358" "4757029" "4840923").PN.) 5106778.URPN.) (((vertical adj3 transistor).ti.) not ((((vertical adj3 transistor).ti.) and trench and (monocrystalline adj silicon)) "20020060338" ((((vertical adj field adj effect adj transistor).ti.) not zhang-zhibo.in.) and (trench)) ((vertical adj field adj effect adj transistor) and (monocrystalline adj silicon)) "6664143" ((("6420751") or ("6049106") or ("5739057") or ("5757038") or ("5106778") or ("0989599")).PN.) zhang-zhibo.in. (("5106778" "5739057" "5757038" "6049106" "6420751").PN.) (("4378629" "4530149" "4543706" "4586240" "4677451" "4713358" "4757029" "4840923").PN.) 5106778.URPN.)) and					
- 359 (((vertical adj3 transistor).ti.) not (((vertical adj3 transistor).ti.) and trench and (monocrystalline adj silicon)) "20020060338" ((((vertical adj field adj effect adj transistor).ti.) not zhang-zhibo.in.) and (trench)) ((vertical adj field adj effect adj transistor) and (monocrystalline adj silicon)) "6664143" ((("6420751") or ("6049106") or ("5739057") or ("5757038") or ("5106778") or ("0989599")).PN.) zhang-zhibo.in. (("5106778" "5739057" "7577038" "6049106" "6420751").PN.) (("4378629" "4530149" "4543706" "4586240" "4677451" "4713358" "4757029" "4840923").PN.) 5106778.URPN.)) and			"4677451" "4713358" "4757029"	1	
((((vertical adj3 transistor).ti.) and trench and (monocrystalline adj silicon)) "20020060338" ((((vertical adj field adj effect adj transistor).ti.) not zhang-zhibo.in.) and (trench)) ((vertical adj field adj effect adj transistor) and (monocrystalline adj silicon)) "6664143" ((("6420751") or ("6049106") or ("5739057") or ("5757038") or ("0989599")).PN.) zhang-zhibo.in. (("5106778" "5737038" "6049106" "6420751").PN.) (("4378629" "4530149" "4543706" "4586240" "4677451" "4713358" "4757029" "4840923").PN.) 5106778.URPN.)) and					0004/00/10
trench and (monocrystalline adj silicon)) "20020060338" ((((vertical adj field adj effect adj transistor).ti.) not zhang-zhibo.in.) and (trench)) ((vertical adj field adj effect adj transistor) and (monocrystalline adj silicon)) "6664143" ((("6420751") or ("6049106") or ("5739057") or ("5757038") or ("5106778") or ("0989599")).PN.) zhang-zhibo.in. (("5106778" "5739057" "5757038" "6049106" "6420751").PN.) (("4378629" "4530149" "4543706" "4586240" "4677451" "4713358" "4757029" "4840923").PN.) 5106778.URPN.)) and	-	359			
"20020060338" ((((vertical adj field adj effect adj transistor).ti.) not zhang-zhibo.in.) and (trench)) ((vertical adj field adj effect adj transistor) and (monocrystalline adj silicon)) "6664143" ((("6420751") or ("6049106") or ("5739057") or ("5757038") or ("5106778") or ("0989599")).PN.) zhang-zhibo.in. (("5106778" "5739057" "5757038" "6049106" "6420751").PN.) (("4378629" "4530149" "4543706" "4586240" "4677451" "4713358" "4757029" "4840923").PN.) 5106778.URPN.)) and					17:07
effect adj transistor).ti.) not zhang-zhibo.in.) and (trench)) ((vertical adj field adj effect adj transistor) and (monocrystalline adj silicon)) "6664143" ((("6420751") or ("6049106") or ("5739057") or ("5757038") or ("5106778") or ("0989599")).PN.) zhang-zhibo.in. (("5106778" "5739057" "5757038" "6049106" "6420751").PN.) (("4378629" "4530149" "4543706" "4586240" "4677451" "4713358" "4757029" "4840923").PN.) 5106778.URPN.)) and					
<pre>zhang-zhibo.in.) and (trench)) ((vertical adj field adj effect adj transistor) and (monocrystalline adj silicon)) "6664143" ((("6420751") or ("6049106") or ("5739057") or ("5757038") or ("5106778") or ("0989599")).PN.) zhang-zhibo.in. (("5106778" "5739057" "5757038" "6049106" "6420751").PN.) (("4378629" "4530149" "4543706" "4586240" "4677451" "4713358" "4757029" "4840923").PN.) 5106778.URPN.)) and</pre>					
(monocrystalline adj silicon)) "6664143" ((("6420751") or ("6049106") or ("5739057") or ("5757038") or ("5106778") or ("0989599")).PN.) zhang-zhibo.in. (("5106778" "5739057" "5757038" "6049106" "6420751").PN.) (("4378629" "4530149" "4543706" "4586240" "4677451" "4713358" "4757029" "4840923").PN.) 5106778.URPN.)) and			zhang-zhibo.in.) and (trench)) ((vertical		
((("6420751") or ("6049106") or ("5739057") or ("5757038") or ("5106778") or ("0989599")).PN.) zhang-zhibo.in. (("5106778" "5739057" "5757038" "6049106" "6420751").PN.) (("4378629" "4530149" "4543706" "4586240" "4677451" "4713358" "4757029" "4840923").PN.) 5106778.URPN.)) and					
("5739057") or ("5757038") or ("5106778") or ("0989599")).PN.) zhang-zhibo.in. (("5106778" "5739057" "5757038" "6049106" "6420751").PN.) (("4378629" "4530149" "4543706" "4586240" "4677451" "4713358" "4757029" "4840923").PN.) 5106778.URPN.)) and					
or ("0989599")).PN.) zhang-zhibo.in. (("5106778" "5739057" "5757038" "6049106" "6420751").PN.) (("4378629" "4530149" "4543706" "4586240" "4677451" "4713358" "4757029" "4840923").PN.) 5106778.URPN.)) and			("5739057") or ("5757038") or ("5106778")	ļ	
(("5106778" "5739057" "5757038" "6049106" "6420751").PN.) (("4378629" "4530149" "4543706" "4586240" "4677451" "4713358" "4757029" "4840923").PN.) 5106778.URPN.)) and	1				
"4530149" "4543706" "4586240" "4677451" "4713358" "4757029" "4840923").PN.) 5106778.URPN.)) and		1	(("5106778" "5739057" "5757038"		
"4677451" "4713358" "4757029" "4840923").PN.) 5106778.URPN.)) and					
"4840923").PN.) 5106778.URPN.)) and					
()			(groove or trench or opening)		

-	3	((((vertical adj3 transistor).ti.) not	USPAT;	2004/02/12
		((((vertical adj3 transistor).ti.) and	US-PGPUB;	17:07
l	1	trench and (monocrystalline adj silicon))	EPO; JPO;	
		"20020060338" ((((vertical adj field adj	IBM_TDB	
		effect adj transistor).ti.) not		
		zhang-zhibo.in.) and (trench)) ((vertical		
		adj field adj effect adj transistor) and		
		(monocrystalline adj silicon)) "6664143"		
		((("6420751") or ("6049106") or		
		("5739057") or ("5757038") or ("5106778")		1
		or ("0989599")).PN.) zhang-zhibo.in.		
		(("5106778" "5739057" "5757038"		
		"6049106" "6420751").PN.) (("4378629"		
		"4530149" "4543706" "4586240"		
		"4677451" "4713358" "4757029"		
		"4840923").PN.) 5106778.URPN.)) and		
		(groove or trench or opening)) and source		
ļ l		and drain adj substrate		
1_	245		USPAT;	2004/02/12
	2.0	((((vertical adj3 transistor).ti.) and	US-PGPUB;	17:07
		trench and (monocrystalline adj silicon))	EPO; JPO;	[- · ·
		"20020060338" ((((vertical adj field adj	IBM TDB	
-		effect adj transistor).ti.) not		
		zhang-zhibo.in.) and (trench)) ((vertical		
		adj field adj effect adj transistor) and		1
	,	(monocrystalline adj silicon)) "6664143"		
		((("6420751") or ("6049106") or		
		("5739057") or ("5757038") or ("5106778")		
		or ("0989599")).PN.) zhang-zhibo.in.		
		(("5106778" "5739057" "5757038"		<u> </u>
		"6049106" "6420751").PN.) (("4378629"		
		"4530149" "4543706" "4586240"		
		"4677451" "4713358" "4757029"		
İ				
		"4840923").PN.) 5106778.URPN.)) and		Į.
		(groove or trench or opening)) and source]	
	150	and drain and substrate	USPAT;	2004/02/12
-	158	<pre>((((((vertical adj3 transistor).ti.) not ((((vertical adj3 transistor).ti.) and</pre>	US-PGPUB;	17:07
		((((vertical adjo transistor).ti.) and	EPO; JPO;	1,.0,
		trench and (monocrystalline adj silicon))	1	
		"20020060338" ((((vertical adj field adj	IBM_TDB	
		effect adj transistor).ti.) not		
		zhang-zhibo.in.) and (trench)) ((vertical	1	1
		adj field adj effect adj transistor) and	1	
		(monocrystalline adj silicon)) "6664143"		
		((("6420751") or ("6049106") or	1	1
		("5739057") or ("5757038") or ("5106778")		
		or ("0989599")).PN.) zhang-zhibo.in.	1	
1		(("5106778" "5739057" "5757038"		
	1	"6049106" "6420751").PN.) (("4378629"		
		"4530149" "4543706" "4586240"		
		"4677451" "4713358" "4757029"		
		"4840923").PN.) 5106778.URPN.)) and	1	
		(groove or trench or opening)) and source		
		and drain and substrate) and (sidewall)	L	1

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-	26	((((((vertical adj3 transistor).ti.) not	USPAT;	2004/02/12
		((((vertical adj3 transistor).ti.) and	US-PGPUB;	17:08
		trench and (monocrystalline adj silicon))	EPO; JPO;	
		"20020060338" ((((vertical adj field adj	IBM_TDB	
		effect adj transistor).ti.) not		
		zhang-zhibo.in.) and (trench)) ((vertical		
		adj field adj effect adj transistor) and		
		(monocrystalline adj silicon)) "6664143"		
		((("6420751") or ("6049106") or ("5739057") or ("5757038") or ("5106778")		:
		or ("0989599")).PN.) zhang-zhibo.in. (("5106778" "5739057" "5757038"		
		((3106778 3739037 3737038		
		"4530149" "4543706" "4586240"		
		"4677451" "4713358" "4757029"		
		"4840923").PN.) 5106778.URPN.)) and		
		(groove or trench or opening)) and source		
		and drain and substrate) and (sidewall))		
		and (plug)		
	0	(((((((vertical adj3 transistor).ti.) not	USPAT;	2004/02/12
	l	((((vertical adj3 transistor).ti.) and	US-PGPUB;	17:08
		trench and (monocrystalline adj silicon))	EPO; JPO;	. = -
		"20020060338" ((((vertical adj field adj	IBM TDB	
		effect adj transistor).ti.) not		
		zhang-zhibo.in.) and (trench)) ((vertical		
		adj field adj effect adj transistor) and		
		(monocrystalline adj silicon)) "6664143"		
		((("6420751") or ("6049106") or		
		("5739057") or ("5757038") or ("5106778")		
		or ("0989599")).PN.) zhang-zhibo.in.		
		(("5106778" "5739057" "5757038"	!	
		"6049106" "6420751").PN.) (("4378629"		
		"4530149" "4543706" "4586240"	1	
		"4677451" "4713358" "4757029"		
		"4840923").PN.) 5106778.URPN.)) and		
		(groove or trench or opening)) and source		
		and drain and substrate) and (sidewall))		
		and (plug)) not (((((vertical adj3		
		transistor).ti.) not ((((vertical adj3 transistor).ti.) and trench and		
		(monocrystalline adj silicon))		
	1	"20020060338" ((((vertical adj field adj		
		effect adj transistor).ti.) not		
		zhang-zhibo.in.) and (trench)) ((vertical		
		adj field adj effect adj transistor) and		
		(monocrystalline adj silicon)) "6664143"		
		((("6420751") or ("6049106") or		
		("5739057") or ("5757038") or ("5106778")		
		or ("0989599")).PN.) zhang-zhibo.in.		
		(("5106778" "5739057" "5757038"		
		"6049106" "6420751").PN.) (("4378629"		
		"4530149" "4543706" "4586240"		
		"4677451" "4713358" "4757029"		
		"4840923").PN.) 5106778.URPN.)) and		
		(groove or trench or opening)) and source	1	
	1	and drain and substrate) and (sidewall))	1	l

-	132	(((((vertical adj3 transistor).ti.) not	USPAT;	2004/02/12
		((((vertical adj3 transistor).ti.) and	US-PGPUB;	17:08
İ		trench and (monocrystalline adj silicon))	EPO; JPO;	
		"20020060338" ((((vertical adj field adj	IBM_TDB	
1		effect adj transistor).ti.) not		
		zhang-zhibo.in.) and (trench)) ((vertical		
		adj field adj effect adj transistor) and		
		(monocrystalline adj silicon)) "6664143"		
		((("6420751") or ("6049106") or		
		("5739057") or ("5757038") or ("5106778")		
		or ("0989599")).PN.) zhang-zhibo.in.		
		(("5106778" "5739057" "5757038"		
		"6049106" "6420751").PN.) (("4378629"		
		"4530149" "4543706" "4586240"		
		"4677451" "4713358" "4757029"		
		"4840923").PN.) 5106778.URPN.)) and		
		(groove or trench or opening)) and source		
		and drain and substrate) and (sidewall))		
1		<pre>not (((((((vertical adj3 transistor).ti.)</pre>		
		<pre>not ((((vertical adj3 transistor).ti.)</pre>		
		and trench and (monocrystalline adj		
}		silicon)) "20020060338" ((((vertical adj		
		field adj effect adj transistor).ti.) not		
		zhang-zhibo.in.) and (trench)) ((vertical		
		adj field adj effect adj transistor) and	1	
		(monocrystalline adj silicon)) "6664143"		
		((("6420751") or ("6049106") or		
		("5739057") or ("5757038") or ("5106778")		
		or ("0989599")).PN.) zhang-zhibo.in.		
		(("5106778" "5739057" "5757038"		1
1		"6049106" "6420751").PN.) (("4378629"		1
		"4530149" "4543706" "4586240"		
		"4677451" "4713358" "4757029"		
		"4840923").PN.) 5106778.URPN.)) and		
		(groove or trench or opening)) and source		
		and drain and substrate) and (sidewall))		
		and (plug))	İ	

-	0	((((((vertical adj3 transistor).ti.) not	USPAT;	2004/02/12
		((((vertical adj3 transistor).ti.) and	US-PGPUB;	17:08
		trench and (monocrystalline adj silicon))	EPO; JPO;	
		"20020060338" ((((vertical adj field adj	IBM_TDB	
		effect adj transistor).ti.) not		
		zhang-zhibo.in.) and (trench)) ((vertical		
	!	adj field adj effect adj transistor) and		
		(monocrystalline adj silicon)) "6664143"		
		((("6420751") or ("6049106") or		
		("5739057") or ("5757038") or ("5106778")		i
		or ("0989599")).PN.) zhang-zhibo.in.		
		(("5106778" "5739057" "5757038"		
		"6049106" "6420751").PN.) (("4378629"		•
		"4530149" "4543706" "4586240"		
		"4677451" "4713358" "4757029"		
1		"4840923").PN.) 5106778.URPN.)) and		
		(groove or trench or opening)) and source		
		and drain and substrate) and (sidewall))		
	l	<pre>not (((((((vertical adj3 transistor).ti.)</pre>		
		<pre>not ((((vertical adj3 transistor).ti.)</pre>		
	1	and trench and (monocrystalline adj]
		silicon)) "20020060338" ((((vertical adj		İ
		field adj effect adj transistor).ti.) not		
		zhang-zhibo.in.) and (trench)) ((vertical		
		adj field adj effect adj transistor) and		
		(monocrystalline adj silicon)) "6664143"		
į	1	((("6420751") or ("6049106") or		
		("5739057") or ("5757038") or ("5106778")		
		or ("0989599")).PN.) zhang-zhibo.in.		
	1	(("5106778" "5739057" "5757038"		
		"6049106" "6420751").PN.) (("4378629"		
		"4530149" "4543706" "4586240"		
		"4677451" "4713358" "4757029"		
]	"4840923").PN.) 5106778.URPN.)) and		
		(groove or trench or opening)) and source		
		and drain and substrate) and (sidewall))		
		and (plug))) and ((plug with (dielectric		
		or insulat\$4)))		
_	21	(vertical adj transistor) and	USPAT;	2004/02/12
		(monocrystalline adj silicon) and (plug	US-PGPUB;	17:16
		with (dielectric or insulat\$4))	EPO; JPO;	
			IBM TDB	
_	91	(vertical adj transistor) and (plug with	USPAT;	2004/02/12
		(dielectric or insulat\$4))	US-PGPUB;	17:30
		,	EPO; JPO;	
			IBM_TDB	
-	70	((vertical adj transistor) and (plug	USPĀT;	2004/02/12
		with (dielectric or insulat\$4))) not	US-PGPUB;	17:17
		((vertical adj transistor) and	EPO; JPO;	
		(monocrystalline adj silicon) and (plug	IBM_TDB	
		with (dielectric or insulat\$4)))	-	
-	5	(((vertical adj transistor) and (plug	USPAT;	2004/02/12
		with (dielectric or insulat\$4))) not	US-PGPUB;	17:18
		((vertical adj transistor) and	EPO; JPO;	
		(monocrystalline adj silicon) and (plug	IBM_TDB	1
		with (dielectric or insulat\$4)))) and		
		(monocrystalline)		
-	65	(((vertical adj transistor) and (plug	USPAT;	2004/02/12
		with (dielectric or insulat\$4))) not	US-PGPUB;	17:18
		((vertical adj transistor) and	EPO; JPO;	1
		(monocrystalline adj silicon) and (plug	IBM_TDB	
		with (dielectric or insulat\$4)))) not		
		((((vertical adj transistor) and (plug		
		with (dielectric or insulat\$4))) not		
1	1	((vertical adj transistor) and		
		(monocrystalline adj silicon) and (plug	1	
		with (dielectric or insulat\$4)))) and	1	
	I	(monocrystalline))		I

	61	<pre>((((vertical adj transistor) and (plug with (dielectric or insulat\$4))) not ((vertical adj transistor) and (monocrystalline adj silicon) and (plug with (dielectric or insulat\$4))) not ((((vertical adj transistor) and (plug with (dielectric or insulat\$4))) not ((vertical adj transistor) and (monocrystalline adj silicon) and (plug with (dielectric or insulat\$4))) and (monocrystalline))) and (trench or opening or groove)</pre>	USPAT; US-PGPUB; EPO; JPO; IBM_TDB	2004/02/12
	49		USPAT; US-PGPUB; EPO; JPO; IBM_TDB	2004/02/12
	12	<pre>(((((vertical adj transistor) and (plug with (dielectric or insulat\$4))) not ((vertical adj transistor) and (monocrystalline adj silicon) and (plug with (dielectric or insulat\$4))) not (((vertical adj transistor) and (plug with (dielectric or insulat\$4))) not ((vertical adj transistor) and (monocrystalline adj silicon) and (plug with (dielectric or insulat\$4))) and (monocrystalline)) and (trench or opening or groove)) not (((((vertical adj transistor) and (plug with (dielectric or insulat\$4))) not ((vertical adj transistor) and (monocrystalline adj silicon) and (plug with (dielectric or insulat\$4))) not (((vertical adj transistor) and (plug with (dielectric or insulat\$4))) not ((vertical adj transistor) and (plug with (dielectric or insulat\$4))) not ((vertical adj transistor) and (monocrystalline adj silicon) and (plug with (dielectric or insulat\$4))) and (monocrystalline adj silicon) and (plug with (dielectric or insulat\$4))) and (monocrystalline))) and (trench or opening or groove)) and (substrate and source and drain))</pre>	USPAT; US-PGPUB; EPO; JPO; IBM_TDB	2004/02/12 17:26
_	642	(vertical adj transistor) and (trench with (dielectric or insulat\$4))	USPAT; US-PGPUB; EPO; JPO; IBM TDB	2004/02/12 17:48
_	574	((vertical adj transistor) and (trench with (dielectric or insulat\$4))) not ((vertical adj transistor) and (plug with (dielectric or insulat\$4)))	USPAT; US-PGPUB; EPO; JPO; IBM_TDB	2004/02/12 17:31

_	566	(((vertical adj transistor) and (trench	USPAT;	2004/02/12
	366	with (dielectric or insulat\$4))) not	US-PGPUB;	17:31
		((vertical adj transistor) and (plug	EPO; JPO;	17.31
		((Vertical adj transistor, and (prug with (dielectric or insulat\$4))))	IBM TDB	
			1611_106	
		not((((((vertical adj3 transistor).ti.)		
		not ((((vertical adj3 transistor).ti.)		
		and trench and (monocrystalline adj		
		silicon)) "20020060338" ((((vertical adj		
		field adj effect adj transistor).ti.) not		†
		zhang-zhibo.in.) and (trench)) ((vertical		1
		adj field adj effect adj transistor) and		
		(monocrystalline adj silicon)) "6664143")
		((("6420751") or ("6049106") or		1
		("5739057") or ("5757038") or ("5106778")		
		or ("0989599")).PN.) zhang-zhibo.in.		
		(("5106778" "5739057" "5757038"		İ
		"6049106" "6420751").PN.) (("4378629"		
		"4530149" "4543706" "4586240"		
		"4677451" "4713358" "4757029"		
	1	"4840923").PN.) 5106778.URPN.)) and		
		(groove or trench or opening)) and source		
		and drain adj substrate) (((((vertical		
		adj3 transistor).ti.) not (((vertical		į
		adj3 transistor).ti.) and trench and		
		(monocrystalline adj silicon))		
		"20020060338" ((((vertical adj field adj		
	Ì	effect adj transistor).ti.) not		
		zhang-zhibo.in.) and (trench)) ((vertical		
		adj field adj effect adj transistor) and		
	1	(monocrystalline adj silicon)) "6664143"		1
	ļ	((("6420751") or ("6049106") or		
		("5739057") or ("5757038") or ("5106778")	1	
		or ("0989599")).PN.) zhang-zhibo.in.		
		(("5106778" "5739057" "5757038"		
		"6049106" "6420751").PN.) (("4378629" "4530149" "4543706" "4586240"		
		•		1
		"4677451" "4713358" "4757029"		
		"4840923").PN.) 5106778.URPN.)) and	1	
		(groove or trench or opening)) and source		
		and drain and substrate) and (sidewall))		
		and (plug)) ((vertical adj transistor)		
		and (monocrystalline adj silicon) and		
		(plug with (dielectric or insulat\$4)))		
		(((vertical adj transistor) and (plug		
		with (dielectric or insulat\$4))) not		
		((vertical adj transistor) and	1	
		(monocrystalline adj silicon) and (plug		
1		with (dielectric or insulat\$4)))))		

-	125	((((vertical adj transistor) and (trench	USPAT;	2004/02/12
		with (dielectric or insulat\$4))) not	US-PGPUB;	17:42
		((vertical adj transistor) and (plug	EPO; JPO;	
		with (dielectric or insulat\$4))))	IBM TDB	1
		not(((((vertical adj3 transistor).ti.)	1011_100	
		not ((((vertical adj3 transistor).ti.)		
		and trench and (monocrystalline adj		1
				1
		silicon)) "20020060338" ((((vertical adj		
		field adj effect adj transistor).ti.) not		ł
		zhang-zhibo.in.) and (trench)) ((vertical		1
		adj field adj effect adj transistor) and		
		(monocrystalline adj silicon)) "6664143"		
		((("6420751") or ("6049106") or		
		("5739057") or ("5757038") or ("5106778")		
		or ("0989599")).PN.) zhang-zhibo.in.		1
		(("5106778" "5739057" "5757038"		
		"6049106" "6420751").PN.) (("4378629"		
		"4530149" "4543706" "4586240"		
		"4677451" "4713358" "4757029"		
		"4840923").PN.) 5106778.URPN.)) and		
1		(groove or trench or opening)) and source		
1		and drain adj substrate) (((((vertical		
		adj3 transistor).ti.) not ((((vertical		
		adj3 transistor).ti.) and trench and		
		(monocrystalline adj silicon))		
		"20020060338" ((((vertical adj field adj		
		effect adj transistor).ti.) not		
		zhang-zhibo.in.) and (trench)) ((vertical		
		adj field adj effect adj transistor) and		
		(monocrystalline adj silicon)) "6664143"		
		((("6420751") or ("6049106") or		
		(((8420731) 61 (8643106) 61 ("5739057") or ("5757038") or ("5106778")		
		or ("0989599")).PN.) zhang-zhibo.in. (("5106778" "5739057" "5757038"		
			1	
		"6049106" "6420751").PN.) (("4378629"		
1		"4530149" "4543706" "4586240"		
		"4677451" "4713358" "4757029"		
		"4840923").PN.) 5106778.URPN.)) and		
*		(groove or trench or opening)) and source		
		and drain and substrate) and (sidewall))		
		and (plug)) ((vertical adj transistor)		
		and (monocrystalline adj silicon) and		
		(plug with (dielectric or insulat\$4)))		
		(((vertical adj transistor) and (plug		
		with (dielectric or insulat\$4))) not		
		((vertical adj transistor) and		
		(monocrystalline adj silicon) and (plug		1
		with (dielectric or insulat\$4))))) and		
		(crystalline)	I	

[-	111	((((vertical adj transistor) and (trench	USPAT;	2004/02/12
		with (dielectric or insulat\$4))) not	US-PGPUB;	17:32
		((vertical adj transistor) and (plug	EPO; JPO;	
		<pre>with (dielectric or insulat\$4))))</pre>	IBM TDB	
	i	<pre>not((((((vertical adj3 transistor).ti.)</pre>	-	
	ĺ	<pre>not ((((vertical adj3 transistor).ti.)</pre>		
1		and trench and (monocrystalline adj		
1		silicon)) "20020060338" ((((vertical adj		
	İ	field adj effect adj transistor).ti.) not		
		zhang-zhibo.in.) and (trench)) ((vertical		
	İ	adj field adj effect adj transistor) and		
		(monocrystalline adj silicon)) "6664143"		
	j	((("6420751") or ("6049106") or		
		("5739057") or ("5757038") or ("5106778")		
	j	or ("0989599")).PN.) zhang-zhibo.in.		
† 1		(("5106778" "5739057" "5757038"		
	ļ	"6049106" "6420751").PN.) (("4378629"		
		"4530149" "4543706" "4586240"		
]	"4677451" "4713358" "4757029"		
		"4840923").PN.) 5106778.URPN.)) and		
		(groove or trench or opening)) and source		
1		and drain adj substrate) ((((((vertical		
1		adj3 transistor).ti.) not ((((vertical		
		adj3 transistor).ti.) and trench and		
!		(monocrystalline adj silicon))		
		"20020060338" ((((vertical adj field adj		
		effect adj transistor).ti.) not		
	ļ	zhang-zhibo.in.) and (trench)) ((vertical		
}		adj field adj effect adj transistor) and		1
	1	(monocrystalline adj silicon)) "6664143"		
		((("6420751") or ("6049106") or		
		("5739057") or ("5757038") or ("5106778")		
		or ("0989599")).PN.) zhang-zhibo.in.		
		(("5106778" "5739057" "5757038"		
		"6049106" "6420751").PN.) (("4378629"		
		"4530149" "4543706" "4586240"		
		"4677451" "4713358" "4757029"		
1	ı	"4840923").PN.) 5106778.URPN.)) and		
		(groove or trench or opening)) and source		
	i	and drain and substrate) and (sidewall))		
		and (plug)) ((vertical adj transistor)		
	1	and (monocrystalline adj silicon) and		
		(plug with (dielectric or insulat\$4)))		
		(((vertical adj transistor) and (plug		
		with (dielectric or insulat\$4))) not		
		((vertical adj transistor) and		1
		(monocrystalline adj silicon) and (plug		
		with (dielectric or insulat\$4)))))) and		
		(crystalline)) and (source and drain and		†
		substrate)		

- 103	(((((vertical adj transistor) and	USPAT;	2004/02/12
	(trench with (dielectric or insulat\$4)))	US-PGPUB;	17:42
	not ((vertical adj transistor) and (plug	EPO; JPO;	
	<pre>with (dielectric or insulat\$4))))</pre>	IBM TDB	
	<pre>not((((((vertical adj3 transistor).ti.)</pre>	_	
1	<pre>not ((((vertical adj3 transistor).ti.)</pre>		
	and trench and (monocrystalline adj		
1	silicon)) "20020060338" ((((vertical adj		
	field adj effect adj transistor).ti.) not]
 	zhang-zhibo.in.) and (trench)) ((vertical		
·	adj field adj effect adj transistor) and		
1	(monocrystalline adj silicon)) "6664143"		
	((("6420751") or ("6049106") or		
	("5739057") or ("5757038") or ("5106778")		
	or ("0989599")).PN.) zhang-zhibo.in.		
	(("5106778" "5739057" "5757038"		
	"6049106" "6420751").PN.) (("4378629"		
	"4530149" "4543706" "4586240"		
	"4677451" "4713358" "4757029"		
į į	"4840923").PN.) 5106778.URPN.)) and		
	(groove or trench or opening)) and source		
	and drain adj substrate) (((((vertical		İ
	adj3 transistor).ti.) not ((((vertical		
	adj3 transistor).ti.) and trench and		[
	(monocrystalline adj silicon))		
	"20020060338" ((((vertical adj field adj		
1	effect adj transistor).ti.) not		
1	zhang-zhibo.in.) and (trench)) ((vertical		
	adj field adj effect adj transistor) and		
	(monocrystalline adj silicon)) "6664143"		
[((("6420751") or ("6049106") or		
	("5739057") or ("5757038") or ("5106778")		
	or ("0989599")).PN.) zhang-zhibo.in.		
	(("5106778" "5739057" "5757038"	1	1
	"6049106" "6420751").PN.) (("4378629"	}	
	"4530149" "4543706" "4586240"		
	"4677451" "4713358" "4757029"		
	"4840923").PN.) 5106778.URPN.)) and		1
	(groove or trench or opening)) and source		
	and drain and substrate) and (sidewall))		
	and (plug)) ((vertical adj transistor)		
	and (monocrystalline adj silicon) and		
	(plug with (dielectric or insulat\$4)))		
	(((vertical adj transistor) and (plug		
	with (dielectric or insulat\$4))) not		
	((vertical adj transistor) and		
	(monocrystalline adj silicon) and (plug	1	
	with (dielectric or insulat\$4))))) and	1	
	(crystalline)) and (source and drain and		
	substrate)) and (channel)		

		TIGDAM.	12004/02/12
_ 22	1,,,,,	USPAT;	2004/02/12
	with (dielectric or insulat\$4))) not	US-PGPUB;	17:42
	((vertical adj transistor) and (plug	EPO; JPO;	
1	with (dielectric or insulat\$4))))	IBM_TDB	
	not((((((vertical adj3 transistor).ti.)		
	not ((((vertical adj3 transistor).ti.) and trench and (monocrystalline adj		
	silicon) "20020060338" ((((vertical adj		j j
	field adj effect adj transistor).ti.) not		
	zhang-zhibo.in.) and (trench)) ((vertical		!
	adj field adj effect adj transistor) and]
	(monocrystalline adj silicon)) "6664143"		i
	((("6420751") or ("6049106") or		
	("5739057") or ("5757038") or ("5106778")		!
	or ("0989599")).PN.) zhang-zhibo.in.		
	(("5106778" "5739057" "5757038"		
	"6049106" "6420751").PN.) (("4378629"		
	"4530149" "4543706" "4586240"		
	"4677451" "4713358" "4757029"		
	"4840923").PN.) 5106778.URPN.)) and		
	(groove or trench or opening)) and source		
	and drain adj substrate) (((((vertical		1
	adj3 transistor).ti.) not ((((vertical		
	adj3 transistor).ti.) and trench and		
	(monocrystalline adj silicon))		
	"20020060338" ((((vertical adj field adj		
	effect adj transistor).ti.) not		
	zhang-zhibo.in.) and (trench)) ((vertical		
	adj field adj effect adj transistor) and		
	(monocrystalline adj silicon)) "6664143"		
	((("6420751") or ("6049106") or		
	("5739057") or ("5757038") or ("5106778")		
	or ("0989599")).PN.) zhang-zhibo.in.		1
	(("5106778" "5739057" "5757038"		
	"6049106" "6420751").PN.) (("4378629"		
	"4530149" "4543706" "4586240"		
	"4677451" "4713358" "4757029"		
	"4840923").PN.) 5106778.URPN.)) and		
	(groove or trench or opening)) and source		
	and drain and substrate) and (sidewall))		
	and (plug)) ((vertical adj transistor)		
	and (monocrystalline adj silicon) and		
	(plug with (dielectric or insulat\$4)))		
1	(((vertical adj transistor) and (plug		
	<pre>with (dielectric or insulat\$4))) not ((vertical adj transistor) and</pre>		1
	(wertical adj transistor) and (plug (monocrystalline adj silicon) and (plug	Ì	1
	with (dielectric or insulat\$4))))) and		1
	(crystalline)) not ((((((vertical adj		1
	transistor) and (trench with (dielectric		
	or insulat\$4))) not ((vertical adj		}
	transistor) and (plug with (dielectric		
	or insulat\$4)))) not(((((vertical adj3		
	transistor).ti.) not ((((vertical adj3		
,	transistor).ti.) and trench and		
	(monocrystalline adj silicon))		
	"20020060338" ((((vertical adj field adj		
	effect adj transistor).ti.) not		
	zhang-zhibo.in.) and (trench)) ((vertical		
	adj field adj effect adj transistor) and		
	(monocrystalline adj silicon)) "6664143"		
	((("6420751") or ("6049106") or		
	("5739057") or ("5757038") or ("5106778")		
	or ("0989599")).PN.) zhang-zhibo.in.		
	(("5106778" "5739057" "5757038"		
	"6049106" "6420751").PN.) (("4378629"	1	
	"4530149" "4543706" "4586240" "4677451" "4713358" "4757029"		
	"4677451" "4713358" "4757029" "4840923").PN.) 5106778.URPN.)) and		
	(groove or trench or opening)) and source		
	and drain adj substrate) ((((((vertical		
	and drain adj substrate; (((((vertical		
Search History	6/18794t744514toPM.ti.Pagnd1french and		
	(monocrystalline adj silicon))	1	
C:\APPS\EAST\Works	paces 020060350".wsp(((vertical adj field adj		
	effect adj transistor).ti.) not	1	I

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<pre>(trench same ((sidewall or (side ad) wall)) with (monosilion) or silicon))) not ((((vertical adj transistor) and (trench with (dielectric or insulat\$4))) not ((vertical adj transistor) and (plug with (dielectric or insulat\$4))) not((((vertical adj transistor).ti.) not ((((vertical adj transistor).ti.) not ((((vertical adj transistor).ti.) and trench and (monocrystalline adj silicon) "20020060338" (((vertical adj field adj effect adj transistor).ti.) not zhang-zhibo.in.) and (trench) ((vertical adj field adj effect adj transistor) and (monocrystalline adj silicon) "6664143" ((("6420751") or ("507908") or ("5106778") or ("0989599")).PN.) zhang-zhibo.in. (("5106778" "5739057") "5757038") "6049106" "6420751").PN.) (("4378629") "4677451" "471358" "4757029" "4840923").PN.) 5106778.URPN.)) and (groove or trench or openingl) and source and drain adj substrate) ((((((vertical adj3 transistor).ti.) not (((vertical adj3 transistor).ti.) and trench and (monocrystalline adj silicon)) "2020060338" (((vertical adj field adj effect adj transistor).ti.) not zhang-zhibo.in.) and (trench) ((vertical adj field adj effect adj transistor) and (monocrystalline adj silicon)) "2008599")).PN.) zhang-zhibo.in. (("5106778") or ("503905") "5757038") "6049106" "6420751").PN.) ("4378629" "4530149" "4543706") or ("57390577) or ("5757308") or ("5106778") or ("098599")).PN.) zhang-zhibo.in. (("5407781") or ("57390577) "5757038") "6049106" "6420751").PN.) (("4378629" "4677451" "4713358" "4757029" "46477451" "4713358" "4757029" "46477451" "4713758" "4757029" "46477451" "4713758" "4757029" "46477451" "4713758" "4757029" "46477451" "4713758" "4757029" "46477451" "4713758" "4757029" "46477451" "4713758" "4757029" "46477451" "4713758" "4757029" "46477451" "4713758" "4757029" "46477451" "4713758" "4757029" "46477451" "4713758" "4757029" "46477451" "4713758" "47157029" "46477451" "4713758" "4757029" "46477451" "4713758" "47157029" "4647745</pre>		107			
wall) with (monosilicon or silicon)) not ((((vertical adj transistor) and ((trench with (dielectric or insulat\$4))) not ((vertical adj transistor) and (plug with (dielectric adj3 transistor).ti.) not (((((vertical adj3 transistor).ti.) and trench and (monocrystalline adj silicon)) "20020060338" ((((vertical adj field adj effect adj transistor).ti.) not zhang-zhibo.in.) and (trench)) ((vertical adj field adj effect adj transistor) and (monocrystalline adj silicon)) "6664143" ((("6420751") or ("5757038") or ("5106778") or ("7579057") or ("5757038") or ("5106778") or ("0098599").PN.) zhang-zhibo.in. (("5106778") er ("6420751").PN.) (("4378629") "453706" "4586240" "4677451" "4713388" "4757029" "4840923").PN.) 5106778.URPN.)) and (groove or trench or opening)) and source and drain adj substrate) ((((((vertical adj3 transistor).ti.) not ((((vertical adj3 transistor).ti.) and trench and (monocrystalline adj silicon)) "20020060338" ((((vertical adj field adj effect adj transistor)) ((vertical adj field adj effect adj transistor) or ("5739057") or ("57390			·	· ·	17.31
not ((((((vertical adj transistor) and (trench with (dielectric or insulat\$4))) not ((vertical adj transistor) and (plug with (dielectric or insulat\$4))) not(((((vertical adj3 transistor).ti.) not((((vertical adj3 transistor).ti.) not ((((vertical adj3 transistor).ti.) and trench and (monocrystalline adj silicon)) "20020060338" ((((vertical adj field adj effect adj transistor).ti.) not zhang-zhibo.in.) and (trench)) ((vertical adj field adj effect adj transistor) and (monocrystalline adj silicon)) "6664143" ((("6420751") or ("6049106") or ("5739057") or ("5757038") or ("5166778") or ("058959")).PN.) zhang-zhibo.in. (("5106778" "5757038") or ("516778") or ("058959").PN.) zhang-zhibo.in. (("5106778" "6420751").PN.) (("4370620" "4530149" "4543706" "4586240" "4677451" "4713358" "4757029" "4840923").PN.) 5106778.URPN.)) and (groove or trench or opening)) and source and drain adj substrate) (((((vertical adj3 transistor).ti.) not ((((vertical adj3 transistor).ti.) not ((((vertical adj3 transistor).ti.) not (((vertical adj3 transistor).ti.) not (((vertical adj field adj effect adj transistor) adj field adj effect adj transistor) (((*420751") or ("6049106") or ("5739057") or ("5757038") or ("5106778") or ("5739057") or ("5757038") or ("5106778") or ("5739057") or ("5757038") or ("5106778") or ("5739057") or ("5757038") or ("5106778") or ("5739057") or ("5757038") or ("5106778") or ("589959").PN.) tang-zhibo.in. (("5106778" "6420751").PN.) (("4378629" "4677451" "4713358" "4757029" "486923").PN.) 5106778.URPN.)) and (groove or trench or openingl) and source and drain and substrate) and (sidewall)) and (plug)) ((vertical adj transistor) and (monocrystalline adj silicon) (("\$106778") or ("0681454))))) (((vertical adj transistor) and (monocrystalline adj silicon) and (plug with (dielectric or insulat\$4))) not ((vertical adj transistor) and (plug with (dielectric or insulat\$4))))))) 1 "20020060338"					
(trench with (dielectric or insulats4))) not ((vertical adj transistor) and (plug with (dielectric or insulats4)))) not(((((vertical adj3 transistor).ti.) not (((((vertical adj3 transistor).ti.) and trench and (monocrystalline adj silicon)) "20020060338" ((((vertical adj field adj effect adj transistor).ti.) not zhang-zhibo.in.) and (trench)) ((vertical adj field adj effect adj transistor) and (monocrystalline adj silicon)) "6664143" ((("6420751") or ("6049106") or ("5739057") or ("5757038") or ("5106778") or ("0389599").PN.) tanag-zhibo.in. (("5106778" "5739057" "5757038" "6049106" "6420751").PN.) (("4378629" "4530149" "4543706" "4586240" "4530149" "4713369" "4713289" "4840923").PN.) 5106778.URPN.)) and (groove or trench or opening)) and source and drain adj substrate) ((((((vertical adj3 transistor).ti.) not ((((vertical adj3 transistor).ti.) and trench and (monocrystalline adj silicon)) "20020060338" ((((vertical adj field adj effect adj transistor).ti.) not zhang-zhibo.in.) and (trench)) ((vertical adj field adj effect adj transistor) and (monocrystalline adj silicon)) ("5739057") or ("5757038") or ("5106778") or ("088598")).PN.) zhang-zhibo.in. (("5106778" "5739057") "5757038" "6049106" "6420751").PN.) (("4378629" "4677451" "4713358" "4757029" "4680923").PN.) 5106778.URPN.)) and (groove or trench or opening)) and source and drain and substrate) and (sidewall)) and (plug)) ((vertical adj transistor) and (monocrystalline adj silicon)) and (plug with (dielectric or insulats4))) (((vertical adj transistor) and (monocrystalline adj silicon) and (plug with (dielectric or insulats4))))) (((vertical adj transistor) and (monocrystalline adj silicon) and (plug with (dielectric or insulats4)))))) 1 "20020060338"				1 DM_1DB	
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silicon)			and trench and (monocrystalline adj		
field adj effect adj transistor).ti.) not zhang-zhibo.in.) and (trench) ((vertical adj field adj effect adj transistor) and (monocrystalline adj silicon)) "6664143" ((("6420751") or ("6049106") or ("5739057") or ("5757038") or ("5106778") or ("0589599").P.N.) zhang-zhibo.in. (("5106778" "5739057" "5757038" "6049106" "6420751").P.N.) ("4378629" "4530149" "4543706" "4587029" "4840923").P.N.) 5106778.URPN.)) and (groove or trench or openingl) and source and drain adj substrate) (((((vertical adj3 transistor).ti.) not (((vertical adj3 transistor).ti.) not (((vertical adj3 transistor).ti.) not zhang-zhibo.in.) and (trench) ((vertical adj field adj effect adj transistor) and (monocrystalline adj silicon)) "20020060338" (((vertical adj field adj effect adj transistor) or ("5739057") or ("5757038") or ("5106778") or ("5739057") or ("5757038") or ("5739057") or ("5757038") or ("5757038") or ("5757038") or ("5757038") or ("577038") or ("577038") or ("577038") "4530149" "4543706" "4586240" "4577451" "4543706" "4586240" "4677451" "4543706" "4577029" "4840923").P.N.) 5106778.URPN.)) and (groove or trench or openingl) and source and drain and substrate) and (sidewall)) and (plug with (dielectric or insulat\$4))) (((vertical adj transistor) and (monocrystalline adj silicon) and (plug with (dielectric or insulat\$4))) not ((vertical adj transistor) and (monocrystalline adj silicon) and (plug with (dielectric or insulat\$4))) not ((vertical adj transistor) and (monocrystalline) with (dielectric or insulat\$4))) not ((vertical adj transistor) and (plug with (dielectric or insulat\$4))) not ((vertical adj transistor) and (monocrystalline) with (dielectric or insulat\$4))) not ((vertical adj transistor) and (plug with (dielectric or insulat\$4))) not ((vertical adj transistor) and (plug with (dielectric or insulat\$4))) not ((vertical adj transistor) and (plug with (dielectric or insulat\$4))) not ((vertical adj transistor) and (plug with (dielectric or insulat\$4))) not (vertical adj transistor) and (plu					
zhang-zhibo.in.) and (trench)) ((vertical ad) field ad) effect ad) transistor) and (monocrystalline adj silicon)) "6664143" ((("6420751") or ("6049106") or ("5106778") or ("573038") or ("5106778") or ("0989599")).PN.) zhang-zhibo.in. (("5106778") "5757038" "6049106" "6420751").PN.) (("4378629" "4530149" "4543706" "4586240" "4677451" "4713358" "4757029" "4840923").PN.) 5106778.URPN.)) and (groove or trench or opening)) and source and drain adj substrate) (((((vertical adj3 transistor).ti.) and trench and (monocrystalline adj silicon)) "20020060338" ((((vertical adj field adj effect adj transistor).ti.) not zhang-zhibo.in.) and (trench)) ((vertical adj field adj effect adj transistor).ti.) or ("6049106") or ("5739057") or ("5739057") or ("5739057") or ("5739057") or ("5739057") or ("5749106") or ("0989599")).PN.) zhang-zhibo.in. (("5106778") or ("0989599")).PN.) zhang-zhibo.in. (("5106778") "6649106") or "6420751"].PN.) (("4378629" "4530149" "4530149" "45430760" "4586240" "4677451" "4713358" "4757029" "4840923").PN.) 5106778.URN.)) and (groove or trench or opening)) and source and drain and substrate) and (sidewall)) and (plug) ((vertical adj transistor) and (monocrystalline adj silicon) and (plug with (dielectric or insulat\$4))) not ((vertical adj transistor) and (monocrystalline adj silicon) and (plug with (dielectric or insulat\$4))) not ((vertical adj transistor) and (monocrystalline adj silicon) and (plug with (dielectric or insulat\$4))) not ((vertical adj transistor) and (monocrystalline adj silicon) and (plug with (dielectric or insulat\$4))) not ((vertical adj transistor) and (monocrystalline adj silicon) and (plug with (dielectric or insulat\$4)))))) and (crystalline))					
adj field adj effect adj transistor) and (monocrystalline adj silicon) "6664143" ((("6420751") or ("6049106") or ("5106778") or ("0989599")).PN.) zhang-zhibo.in. (("5106778" "5739057" "5757038" "6049106" "6420751").PN.) (("4378629" "4530149" "4543706" "4586240" "4677451" "4713358" "4757022" "4840923").PN.) 5106778.URPN.)) and (groove or trench or opening)) and source and drain adj substrate) (((((vertical adj3 transistor).ti.) not ((((vertical adj3 transistor).ti.) not (((vertical adj field adj effect adj transistor).ti.) not (rench and (monocrystalline adj silicon)) "20020060338" ((((vertical adj field adj effect adj transistor) and (monocrystalline adj silicon)) "6664143" ((("6420751") or ("6049106") or ("5739057") or ("5757038") or ("5106778") or ("9089599").PN.) zhang-zhibo.in. (("5106778" "5739057" "5757038" "6049106" "6420751").PN.) (("378629" "4530149" "4587340" "4586240" "4677451" "4713358" "4757029" "4840923").PN.) 5106778.URPN.)) and (groove or trench or opening)) and source and drain and substrate) and (sidewall)) and (plug with (dielectric or insulat\$4))) not ((vertical adj transistor) and (monocrystalline adj silicon) and (plug with (dielectric or insulat\$4))) not ((vertical adj transistor) and (monocrystalline adj silicon) and (plug with (dielectric or insulat\$4))) not ((vertical adj transistor) and (monocrystalline adj silicon) and (plug with (dielectric or insulat\$4))) not ((vertical adj transistor) and (monocrystalline adj silicon) and (plug with (dielectric or insulat\$4))) not ((vertical adj transistor) and (plug with (dielectric or insulat\$4)))))) and (crystalline)) "20020060338" USPAT; USPACPUB; EPO; JPO;					
(monocrystalline adj silicon)) "6664143" ((("6420751") or ("6049106") or ("5739057") or ("5757038") or ("5106778") or ("0989599")).PN.) zhang-zhibo.in. (("5106778" "5739057" "5757038" "6049106" "6420751").PN.) (("4378629" "4530149" "4543706" "4586240" "4677451" "4713358" "4757029" "4840923").PN.) 5106778.URPN.)) and (groove or trench or opening)) and source and drain adj substrate) ((((((vertical adj3 transistor).ti.) not (((vertical adj3 transistor).ti.) not (((vertical adj3 transistor).ti.) not (((vertical adj3 transistor).ti.) not (((vertical adj field adj effect adj transistor) and (monocrystalline adj silicon)) "6664143" ((("6420751") or ("6049106") or ("5739057") or ("5757038") or ("5106778") or ("0989599").PN.) zhang-zhibo.in. (("5106778" "5739057" "5757038" "6049106" "6420751").PN.) (("4378629" "4530149" "4543706" "4586240" "4677451" "4713358" "4757029" "4840923").PN.) 5106778.URPN.)) and (groove or trench or opening)) and source and drain and substrate) and (sidewall)) and (plug)) ((vertical adj transistor) and (monocrystalline adj silicon) and (plug with (dielectric or insulat\$4))) (((vertical adj transistor) and (monocrystalline adj silicon) and (plug with (dielectric or insulat\$4))) (((vertical adj transistor) and (monocrystalline adj silicon) and (plug with (dielectric or insulat\$4))) (((vertical adj transistor) and (monocrystalline adj silicon) and (plug with (dielectric or insulat\$4)))))) 1 "20020060338" USPAT; USPAGPUB; EPO; JPO;					
(("6420751") or ("5049106") or ("5106778") or ("0989599")).PN.) zhang-zhibo.in. (("5106778"] "5737038"] "5737038"] "5737038"] "6049106" "6420751").PN.) (("4378629"] "4530149"] "4543706"] "4586240"] "4677451"] "4713358"] "4757029"] "4840923").PN.) 5106778.URPN.)) and (grove or trench or opening)) and source and drain adj substrate) (((((vertical adj3 transistor).ti.) and trench and (monocrystalline adj silicon)) "20020060338" ((((vertical adj field adj effect adj transistor).ti.) not (((vertical adj effect adj transistor).ti.) not ((("6410751") or ("6049106") or ("5739057") or ("5757038") or ("5106778") or ("5757038") or ("5106778") or ("5757038") or ("5106778") or ("5757038") or ("5106778"] or ("6420751").PN.) zhang-zhibo.in. (("5106778"] "4530149"] "4543706"] "4586240"] "4677451"] "4713358"] "4757029"] "4840923"].PN.) 5106778.URPN.)) and (grove or trench or opening)) and source and drain and substrate) and (sidewall)) and (plug)) ((vertical adj transistor) and (plug with (dielectric or insulat\$4))) not ((vertical adj transistor) and (plug with (dielectric or insulat\$4))) not ((vertical adj transistor) and (monocrystalline adj silicon) and (plug with (dielectric or insulat\$4)))))) and (crystalline)) "20020060338"		1			
("5739057") or ("5757038") or ("5106778") or ("0989599")) PN.) zhang-zhibo.in.				İ	
or ("0989599").PN.) zhang-zhibo.in. (("5106778" "5739057" "5757038" "6049106" "6420751").PN.) (("4378629" "4530149" "4543706" "4586240" "4677451" "4713358" "4757029" "4840923").PN.) 5106778.URPN.)) and (groove or trench or opening)) and source and drain adj substrate) (((((vertical adj3 transistor).ti.) and trench and (monocrystalline adj silicon)) "20020060338" ((((vertical adj field adj effect adj transistor).ti.) not zhang-zhibo.in.) and (trench) ((vertical adj field adj effect adj transistor) and (monocrystalline adj silicon)) "6664143" ((("6420751") or ("6049106") or ("5739057") or ("5757038") or ("5106778") or ("0989599")).PN.) zhang-zhibo.in. (("5106778" "5739057" "5757038" "6049106" "6420751").PN.) (("4378629" "4530149" "4543706" "4568240" "4677451" "4713358" "4757029" "4840923").PN.) 5106778.URPN.)) and (groove or trench or opening)) and source and drain and substrate) and (sidewall)) and (plug)) ((vertical adj transistor) and (monocrystalline adj silicon) and (plug with (dielectric or insulat\$4))) (((vertical adj transistor) and (plug with (dielectric or insulat\$4))) not ((vertical adj transistor) and (plug with (dielectric or insulat\$4)))))) and (crystalline)) "20020060338" USPAT; US-PGPUB; EPD; JPO;					
(("5106778" "5739057" "5757038" "6049106" "46420751").PN.) (("4278629" "4530149" "4543706" "4586240" "4677451" "4713358" "4757029" "4840923").PN.) 5106778.URPN.)) and (groove or trench or opening)) and source and drain adj substrate) ((((((vertical adj3 transistor).ti.) not (((vertical adj3 transistor).ti.) not (((vertical adj3 transistor).ti.) not ((vertical adj3 transistor).ti.) not [20020060338" ((((vertical adj field adj effect adj transistor).ti.) not zhang-zhibo.in.) and (trench)) ((vertical adj field adj effect adj transistor) and (monocrystalline adj silicon)) "6664143" ((("6420751") or ("6049106") or ("5539057") or ("5757038") or ("5106778") or ("0989599")).PN.) zhang-zhibo.in. (("5106778" "5739057" "5757038" "6049106" "6420751").PN.) (("4378629" "4530149" "4543706" "4586240" "4667451" "4713358" "4757029" "4840923").PN.) 5106778.URPN.)) and (groove or trench or opening)) and source and drain and substrate) and (sidewall)) and (plug)) ((vertical adj transistor) and (monocrystalline adj silicon) and (plug with (dielectric or insulat\$4))) (((vertical adj transistor) and (monocrystalline adj silicon) and (monocrystalline adj silicon) and (crystalline)) "20020060338" USPAT: US-PGUB: EPO; JPO;					
"6049106" "6420751").PN.) (("4378629" "4530149" "4543706" "4586240" "4677451" "4713358" "4757029" "4840923").PN.) 5106778.URPN.)) and (groove or trench or opening)) and source and drain adj substrate) (((((vertical adj3 transistor).ti.) not (((vertical adj3 transistor).ti.) and trench and (monocrystalline adj silicon)) "20020060338" ((((vertical adj field adj effect adj transistor).ti.) not zhang-zhibo.in.) and (trench)) ((vertical adj field adj effect adj transistor) and (monocrystalline adj silicon)) "6664143" ((("6402751") or ("6049106") or ("5739057") or ("5757038") or ("5106778") or ("0989599")).PN.) zhang-zhibo.in. (("5106778" "5739057") "5757038" "6049106" "6420751").PN.) (("4378629" "4530149" "4543706" "4586240" "4677451" "4713358" "4757029" "4840923").PN.) 5106778.URPN.)) and (groove or trench or opening)) and source and drain and substrate) and (sidewall)) and (plug) ((vertical adj transistor) and (monocrystalline adj silicon) and (plug with (dielectric or insulat\$41))) (((vertical adj transistor) and (plug with (dielectric or insulat\$41))) not ((vertical adj transistor) and (plug with (dielectric or insulat\$41))) not ((vertical adj transistor) and (plug with (dielectric or insulat\$41))) not ((vertical adj transistor) and (plug with (dielectric or insulat\$41))) not ((vertical adj transistor) and (monocrystalline adj silicon) and (plug with (dielectric or insulat\$41)))) 1 "20020060338" USPAT; US-PGUB; EPO; JPO;					
"44530149" "4543706" "4586240" "4677451" "4713358" "4757029" "4840923").PN.) 5106778.URPN.)) and (groove or trench or opening)) and source and drain adj substrate) ((((((vertical adj3 transistor).ti.) not (((vertical adj3 transistor).ti.) and trench and (monocrystalline adj silicon)) "20020060338" ((((vertical adj field adj effect adj transistor).ti.) not zhang-zhibo.in.) and (trench)) ((vertical adj field adj effect adj transistor) and (monocrystalline adj silicon)) "6664143" ((("6420751") or ("6049106") or "5106778") or ("998959")).PN.) zhang-zhibo.in. (("5106778" "5739057" "5757038" "6049106" "6420751").PN.) (("4378629" "4530149" "4543706" "4586240" "4677451" "4713358" "4757029" "4840923").PN.) 5106778.URPN.)) and (groove or trench or opening)) and source and drain and substrate) and (sidewall)) and (plug)) ((vertical adj transistor) and (monocrystalline adj silicon) and (plug with (dielectric or insulat\$4))) (((vertical adj transistor) and (plug with (dielectric or insulat\$4))) not ((vertical adj transistor) and (plug with (dielectric or insulat\$4))) not ((vertical adj transistor) and (plug with (dielectric or insulat\$4)))))) and (plug) ((vertical adj transistor) and (monocrystalline adj silicon) and (plug with (dielectric or insulat\$4)))))) 1 "20020060338" USPAT; US-PGPUB; EPO; JPO;			(("5106778" "5739057" "5757038"		
"4677451" "4713358" "4757029" "4840923").PN.) 5106778.URPN.)) and (groove or trench or opening)) and source and drain adj substrate) ((((((vertical adj3 transistor).ti.) not ((((vertical adj3 transistor).ti.) and trench and (monocrystalline adj silicon)) "20020060338" ((((vertical adj field adj effect adj transistor).ti.) not zhang-zhibo.in.) and (trench)) ((vertical adj field adj effect adj transistor) and (monocrystalline adj silicon)) "6664143" ((("6420751") or ("6049106") or ("5739057") or ("5757038") or ("5106778") or ("0989599")).PN.) zhang-zhibo.in. (("5106778" "5739057" "5757038" "6049106" "6420751").PN.) (("4378629" "4530149" "4543706" "4586240" "4677451" "4713358" "4757029" "4840923").PN.) 5106778.URPN.)) and (groove or trench or opening)) and source and drain and substrate) and (sidewall)) and (plug)) ((vertical adj transistor) and (monocrystalline adj silicon) and (plug with (dielectric or insulat\$4))) (((vertical adj transistor) and (plug with (dielectric or insulat\$4))) not ((vertical adj transistor) and (plug with (dielectric or insulat\$4))) not ((vertical adj transistor) and (plug with (dielectric or insulat\$4)))))) and (groove or trench or opening) "20020060338" USPAT: USPAT: USPGPUB; EPO; JPO;			"6049106" "6420751").PN.) (("4378629"]	
"4677451" "4713358" "4757029" "4840923").PN.) 5106778.URPN.)) and (groove or trench or opening)) and source and drain adj substrate) ((((((vertical adj3 transistor).ti.) not ((((vertical adj3 transistor).ti.) and trench and (monocrystalline adj silicon)) "20020060338" ((((vertical adj field adj effect adj transistor).ti.) not zhang-zhibo.in.) and (trench)) ((vertical adj field adj effect adj transistor) and (monocrystalline adj silicon)) "6664143" ((("6420751") or ("6049106") or ("5739057") or ("5757038") or ("5106778") or ("0989599")).PN.) zhang-zhibo.in. (("5106778" "5739057" "5757038" "6049106" "6420751").PN.) (("4378629" "4530149" "4543706" "4586240" "4677451" "4713358" "4757029" "4840923").PN.) 5106778.URPN.)) and (groove or trench or opening)) and source and drain and substrate) and (sidewall)) and (plug)) ((vertical adj transistor) and (monocrystalline adj silicon) and (plug with (dielectric or insulat\$4))) (((vertical adj transistor) and (plug with (dielectric or insulat\$4))) not ((vertical adj transistor) and (plug with (dielectric or insulat\$4))) not ((vertical adj transistor) and (plug with (dielectric or insulat\$4)))))) and (groove or trench or opening) "20020060338" USPAT: USPAT: USPGPUB; EPO; JPO;			"4530149" "4543706" "4586240"		
"4840923").PN.) 5106778.URPN.)) and (groove or trench or opening)) and source and drain adj substrate) ((((((vertical adj3 transistor).ti.) not ((((vertical adj3 transistor).ti.) and trench and (monocrystalline adj silicon)) "20020060338" ((((vertical adj field adj effect adj transistor).ti.) not zhang-zhibo.in.) and (trench)) ((vertical adj field adj effect adj transistor) and (monocrystalline adj silicon)) "6664143" ((("6420751") or ("6049106") or ("5739057") or ("5757038") or ("5106778") or ("0989599")).PN.) zhang-zhibo.in. (("5106778" "5739057" "5757038" "6049106" "6420751").PN.) (("4378629" "4530149" "4543706" "4586240" "4677451" "4713358" "4757029" "4840923").PN.) 5106778.URPN.)) and (groove or trench or opening)) and source and drain and substrate) and (sidewall)) and (plug)) ((vertical adj transistor) and (monocrystalline adj silicon) and (plug with (dielectric or insulat\$4))) (((vertical adj transistor) and (plug with (dielectric or insulat\$4))) not ((vertical adj transistor) and (plug with (dielectric or insulat\$4))) not ((vertical adj transistor) and (monocrystalline adj silicon) and (plug with (dielectric or insulat\$4))) ((vertical adj transistor) and (monocrystalline adj silicon) and (plug with (dielectric or insulat\$4)))))) 1 "20020060338" USPAT; US-PGPUB; EPO; JPO;					
(groove or trench or opening)) and source and drain adj substrate) ((((((vertical adj3 transistor).ti.) not ((((vertical adj3 transistor).ti.) and trench and (monocrystalline adj silicon)) "20020060338" ((((vertical adj field adj effect adj transistor).ti.) not zhang-zhibo.in.) and (trench)) ((vertical adj field adj effect adj transistor) and (monocrystalline adj silicon)) "6664143" ((("6420751") or ("6049106") or ("5739057") or ("5757038") or ("5106778") or ("0989599")).PN.) zhang-zhibo.in. (("5106778" "5739057" "5757038" "6049106" "6420751").PN.) (("4378629" "4530149" "4543706" "4586240" "4677451" "4713358" "4757029" "4840923").PN.) 5106778.URPN.)) and (groove or trench or opening)) and source and drain and substrate) and (sidewall)) and (plug)) ((vertical adj transistor) and (monocrystalline adj silicon) and (plug with (dielectric or insulat\$4))) (((vertical adj transistor) and (monocrystalline adj silicon) and (plug with (dielectric or insulat\$4))) not ((vertical adj transistor) and (monocrystalline adj silicon) and (plug with (dielectric or insulat\$4))) 1 "20020060338" USPAT: USPAT: USPAGPUB; EPO; JPO;					
and drain adj substrate) ((((((vertical adj3 transistor).ti.) not ((((vertical adj3 transistor).ti.)) not ((((vertical adj transistor).ti.)) and trench and (((vertical adj field adj effect adj transistor).ti.) not (((vertical adj field adj effect adj transistor).ti.)) not ((((vertical adj field adj effect adj transistor)) and (((((((ad) 20751")) or ((((((ad) 20751")) or (((((((ad) 20751")) or ((((((((((((((((((((((((((((((((((l i i i i i i i i i i i i i i i i i i i		
adj3 transistor).ti.) not ((((vertical adj3 transistor).ti.) and trench and (monocrystalline adj silicon)) "20020060338" ((((vertical adj field adj effect adj transistor).ti.) not zhang-zhibo.in.) and (trench)) ((vertical adj field adj effect adj transistor) and (monocrystalline adj silicon)) "6664143" ((("6420751") or ("6049106") or ("5739057") or ("5757038") or ("5106778") or ("5098959")).PN.) zhang-zhibo.in. (("5106778" "5739057" "5757038" "6049106" "6420751").PN.) (("4378629" "4530149" "4543706" "4586240" "4677451" "4713358" "4757029" "4840923").PN.) 5106778.URPN.)) and (groove or trench or opening)) and source and drain and substrate) and (sidewall)) and (plug)) ((vertical adj transistor) and (monocrystalline adj silicon) and (plug with (dielectric or insulat\$4))) (((vertical adj transistor) and (monocrystalline adj silicon) and (plug with (dielectric or insulat\$4))) not ((vertical adj transistor) and (monocrystalline adj silicon) and (plug with (dielectric or insulat\$4)))))) and (crystalline)) "20020060338" USPAT; USPGUB; EPO; JPO;					
adj3 transistor).ti.) and trench and ((monocrystalline adj silicon)) "20020060338" ((((vertical adj field adj effect adj transistor).ti.) not zhang-zhibo.in.) and (trench)) ((vertical adj field adj effect adj transistor) and ((monocrystalline adj silicon)) "6664143" ((("6420751") or ("6049106") or ("5739057") or ("5757038") or ("5106778") or ("0988599")).PN.) zhang-zhibo.in. (("5106778" "5739057" "5757038" "6049106" "6420751").PN.) (("4378629" "4530149" "4543706" "4586240" "4677451" "4713358" "4757029" "4840923").PN.) 5106778.URPN.)) and (groove or trench or opening)) and source and drain and substrate) and (sidewall)) and (plug)) ((vertical adj transistor) and (monocrystalline adj silicon) and (plug with (dielectric or insulat\$4))) (((vertical adj transistor) and (monocrystalline adj silicon) and (plug with (dielectric or insulat\$4))) not ((vertical adj transistor) and (monocrystalline adj silicon) and (plug with (dielectric or insulat\$4))))) and (crystalline)) 1 "20020060338" USPAT; US-PGPUB; EPO; JPO;					
<pre>(monocrystalline adj silicon)) "20020060338" ((((vertical adj field adj effect adj transistor).ti.) not zhang-zhibo.in.) and (trench)) ((vertical adj field adj effect adj transistor) and (monocrystalline adj silicon)) "6664143" ((("6420751") or ("6049106") or ("5739057") or ("5757038") or ("5106778") or ("0989599")).PN.) zhang-zhibo.in. (("5106778" "5739057" "7577038" "6049106" "6420751").PN.) (("4378629" "4530149" "4543706" "4586240" "4677451" "4713358" "4757029" "4840923").PN.) 5106778.URPN.)) and (groove or trench or opening)) and source and drain and substrate) and (sidewall)) and (plug)) ((vertical adj transistor) and (monocrystalline adj silicon) and (plug with (dielectric or insulat\$4))) (((vertical adj transistor) and (plug with (dielectric or insulat\$4))) not ((vertical adj transistor) and (monocrystalline adj silicon) and (plug with (dielectric or insulat\$4))) not ((vertical adj transistor) and (monocrystalline adj silicon) and (plug with (dielectric or insulat\$4))) not ((vertical adj transistor) and (monocrystalline adj silicon) and (plug with (dielectric or insulat\$4)))))) and (crystalline)) 1 "20020060338" USPAT; US-PGPUB; EPO; JPO;</pre>					
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